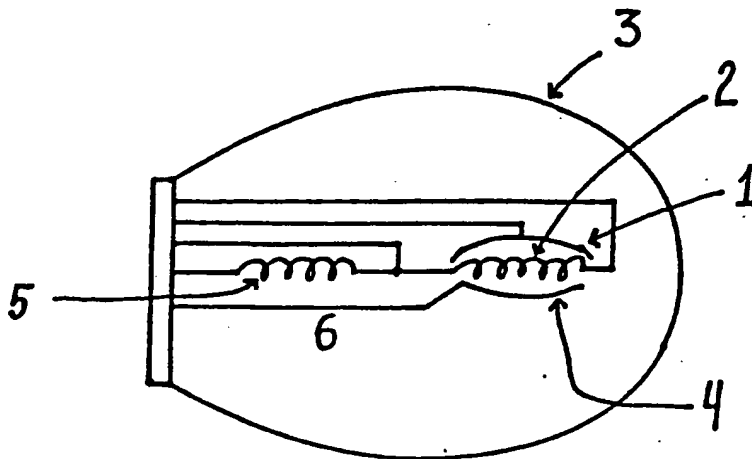




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁵ : H01K 9/08	A1	(11) International Publication Number: WO 92/08241 (43) International Publication Date: 14 May 1992 (14.05.92)
(21) International Application Number: PCT/BR91/00023 (22) International Filing Date: 30 October 1991 (30.10.91) (30) Priority data: PI 9005536 31 October 1990 (31.10.90) BR (71)(72) Applicant and Inventor: BRAGA DE FREITAS, Arthur, Jorge [BR/BR]; Av. Lineu de Paula Machado no. 1006, Apt. 502 B1 I, Lagoa, 22470-Rio de Janeiro, RJ (BR). (81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent), US.		Published <i>With international search report.</i>

(54) Title: METHOD FOR EMISSION OF COLOURED LIGHT BY AN ELECTRIC LAMP



BEST AVAILABLE COPY

(57) Abstract

Electric lamp that produces different colour lights by selecting to energize the filament associated with each of the colour filters, located inside the bulb, in such a way that the light emitted by the filaments crosses these filters, assuming the desired colour. The bulb itself and external reflectors, if any, may be white or transparent, with no effect on the colour of the light emitted.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	ES	Spain	MG	Madagascar
AU	Australia	FI	Finland	ML	Mali
BB	Barbados	FR	France	MN	Mongolia
BE	Belgium	GA	Gabon	MR	Mauritania
BF	Burkina Faso	GB	United Kingdom	MW	Malawi
BG	Bulgaria	GN	Guinea	NL	Netherlands
BJ	Benin	GR	Greece	NO	Norway
BR	Brazil	HU	Hungary	PL	Poland
CA	Canada	IT	Italy	RO	Romania
CF	Central African Republic	JP	Japan	SD	Sudan
CG	Congo	KP	Democratic People's Republic of Korea	SE	Sweden
CH	Switzerland	KR	Republic of Korea	SN	Senegal
CI	Côte d'Ivoire	LI	Lichtenstein	SU ⁺	Soviet Union
CM	Cameroon	LK	Sri Lanka	TD	Chad
CS	Czechoslovakia	LU	Luxembourg	TG	Togo
DE*	Germany	MC	Monaco	US	United States of America
DK	Denmark				

⁺ Any designation of "SU" has effect in the Russian Federation. It is not yet known whether any such designation has effect in other States of the former Soviet Union.

Description of the invention "METHOD FOR EMISSION OF COLOURED LIGHT BY AN ELECTRIC LAMP".

This invention relates to a device that allows electric lamps with white or transparent bulb to emit different colours, as a function of the internal covering of the filament that was selected to be energized.

In this text, to facilitate the description of the invention, lamps with one filament divided by taps in several segments with independent control capability will be considered as having several filaments, one for each independent segment.

The colour lamps available presently, does not matter if intended to application to domestic, artistical, industrial, decorative, public way illumination or automotive use produce the effect of colour by passing the light generated in the filament through the bulb or glass of the reflector apparatus, with no means of changing the colour emitted, unless with a mechanical device to change the colour of the external lens, as used in light guns for artistical purposes.

The present invention describes a method to change the colour of the light, by placing a light filter or any other translucent material, in the desired colour, in such a way that the light beam generated by the filament crosses it before leaving the lamp. Each filament has an individual control to be energized and has a colour of filter associated to it. Obviously, lamps with only one filament but using an internal filter, as described here, without the need to use a colour bulb is a possible embodiment of this invention.

The invention is diagrammatically illustrated, in the appended drawings, that shows by way of example, two possible embodiments of the invention.

Figure 1 shows an embodiment appropriated for lamps that presents an internal reflector for one of the filaments, as those used for automotive headlight lamps.

Figure 2 shows another possible embodiment of the invention, with number of filaments taken at random.

Figure 3 shows in detail the filament embraced by the filter, with two examples of possible embodiments.

In accordance with one embodiment of the present invention (figure 1) applied to a lamp with a reflector (1) internal to the bulb (3) intended to partly block the light of one of the filaments (2) in such a way that it concentrate the beam in a desired direction, the filter or any other material with the property of changing the colour of the light (4) intercept the beams that leave the filament, reflected by the internal reflector or not, changing the colour to the desired one. Other filaments may be provided or not with filters (5), in accordance with the desired application.

The control of the colour of the light to be emitted by the lamp is done by the energization of the filament associated to the filter of this colour. The way the filter is fixed inside the bulb (6) is not relevant, provided that it not blocks out significant portion of the light produced by the filament.

In accordance with other possible embodiment of this invention (figure 2) the filaments (1) are embraced by small bulbs (2), fixed by any internal element (4) located internally to the external bulb (3). These small internal bulbs (2) intercepts the light emitted by the filaments giving them the desired colour.

The colour of the light resulted from this lamp is defined by the control of which filament is energized in each instant, including the combination of the effects of two or more filaments and filters.

The material that embraces the filament, giving colour to the light, must be installed in such a way that all the beams leaving the filament associated with that filter must cross it in order to have its colour changed. Two possible implementations giving this effect are shown (figure 3) nevertheless others may be used without changing the object of the present invention.

The filter embracing the filament (1) may almost close in the extremities (2) in order to avoid the light from passing without having its colour changed or may have opaque elements (3) in the extremities, in order to avoid the light beam to pass unless through the filter. The light

of the filament (4) in these situations will present the colour of the filter associated to it.

CLAIMS

1- "METHOD FOR EMISSION OF COLOURED LIGHT BY AN ELECTRIC LAMP", characterized by the installation of a light filter or any other material able to change the colour of the light beam that crosses it and situated inside the external bulb of the lamp in such a way that intercept the light emitted by the filament.

2- "METHOD FOR EMISSION OF COLOURED LIGHT BY AN ELECTRIC LAMP", as in claim 1, characterized by the possibility of several associations of filters and filaments inside the bulb, allowing the selection of the colour of the lamp by the energization of a selected filament associated to the filter of the desired colour.

1/1

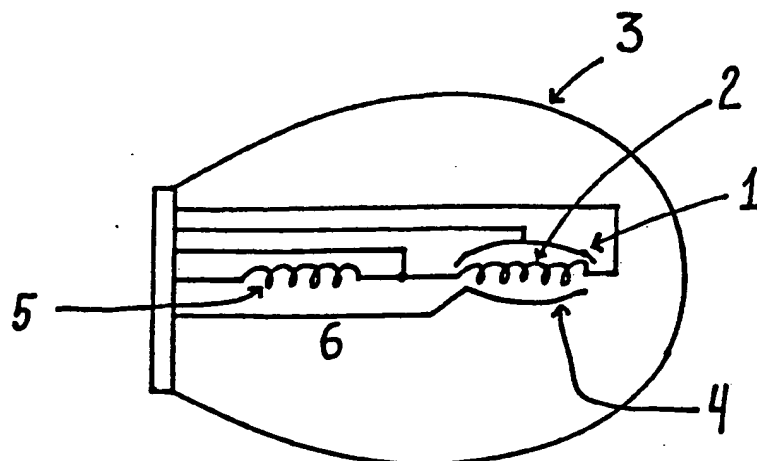


FIG 1

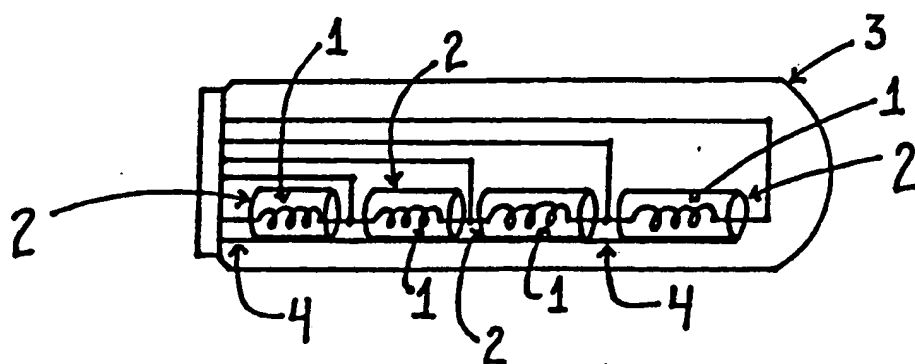


FIG 2

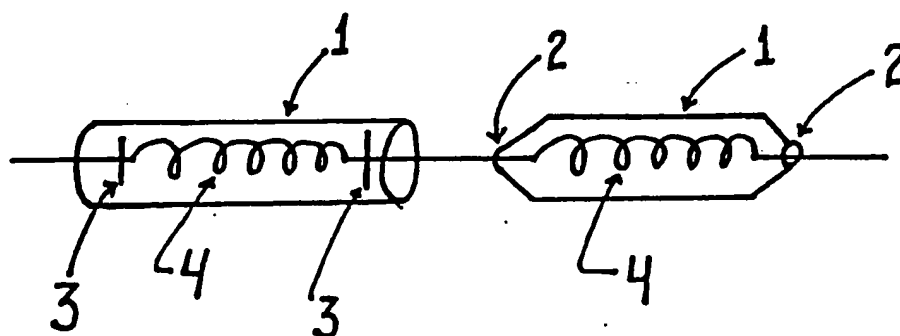


FIG 3

INTERNATIONAL SEARCH REPORT

International Application No PCT/BR 91/00023

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ⁶ According to International Patent Classification (IPC) or to both National Classification and IPC Int. Cl. ⁵ : H 01 K 9/08														
II. FIELDS SEARCHED <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Minimum Documentation Searched ⁷</div> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%; border-bottom: 1px solid black;">Classification System</th> <th style="border-bottom: 1px solid black;">Classification Symbols</th> </tr> <tr> <td style="padding: 5px;">Int. Cl.⁵:</td> <td style="padding: 5px;">H 01 K 1/00; H 01 K 3/00; H 01 K 7/00</td> </tr> </table> <div style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Documentation Searched other than Minimum Documentation to the extent that such Documents are included in the Fields Searched ⁸</div>			Classification System	Classification Symbols	Int. Cl. ⁵ :	H 01 K 1/00; H 01 K 3/00; H 01 K 7/00								
Classification System	Classification Symbols													
Int. Cl. ⁵ :	H 01 K 1/00; H 01 K 3/00; H 01 K 7/00													
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹ <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%; border-bottom: 1px solid black;">Category ⁹</th> <th style="border-bottom: 1px solid black;">Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²</th> <th style="width: 15%; border-bottom: 1px solid black;">Relevant to Claim No. ¹³</th> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">US, A, 3 258 631 (T.H. ELMER et al.), 28 June 1966 (28.06.66), see claims 1 to 5; fig. 1 to 3.</td> <td style="text-align: center; vertical-align: top; padding: 5px;">(1,2)</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">US, A, 4 839 553 (MELLOR) 13 June 1989 (13.06.89), see abstract; fig. 13 and 14.</td> <td style="text-align: center; vertical-align: top; padding: 5px;">(1,2)</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">EP, A1, 0 371 553 (N.V. PHILIPS' GLOELLAMPEN-FABRIEKEN), 06 June 1990 (06.06.90), see abstract; fig. 1.</td> <td style="text-align: center; vertical-align: top; padding: 5px;">(1,2)</td> </tr> </table>			Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³	A	US, A, 3 258 631 (T.H. ELMER et al.), 28 June 1966 (28.06.66), see claims 1 to 5; fig. 1 to 3.	(1,2)	A	US, A, 4 839 553 (MELLOR) 13 June 1989 (13.06.89), see abstract; fig. 13 and 14.	(1,2)	A	EP, A1, 0 371 553 (N.V. PHILIPS' GLOELLAMPEN-FABRIEKEN), 06 June 1990 (06.06.90), see abstract; fig. 1.	(1,2)
Category ⁹	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³												
A	US, A, 3 258 631 (T.H. ELMER et al.), 28 June 1966 (28.06.66), see claims 1 to 5; fig. 1 to 3.	(1,2)												
A	US, A, 4 839 553 (MELLOR) 13 June 1989 (13.06.89), see abstract; fig. 13 and 14.	(1,2)												
A	EP, A1, 0 371 553 (N.V. PHILIPS' GLOELLAMPEN-FABRIEKEN), 06 June 1990 (06.06.90), see abstract; fig. 1.	(1,2)												
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>¹⁰ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p> </div> </div>														
IV. CERTIFICATION <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding: 5px;">Date of the Actual Completion of the International Search</td> <td style="width: 50%; border-bottom: 1px solid black; padding: 5px;">Date of Mailing of this International Search Report</td> </tr> <tr> <td style="padding: 5px;">17 January 1992 (17.01.92)</td> <td style="padding: 5px;">24 January 1992 (24.01.92)</td> </tr> <tr> <td style="border-bottom: 1px solid black; padding: 5px;">International Searching Authority</td> <td style="border-bottom: 1px solid black; padding: 5px;">Signature of Authorized Officer</td> </tr> <tr> <td style="padding: 5px;">AUSTRIAN PATENT OFFICE</td> <td style="padding: 5px; text-align: center;"> </td> </tr> </table>			Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	17 January 1992 (17.01.92)	24 January 1992 (24.01.92)	International Searching Authority	Signature of Authorized Officer	AUSTRIAN PATENT OFFICE					
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report													
17 January 1992 (17.01.92)	24 January 1992 (24.01.92)													
International Searching Authority	Signature of Authorized Officer													
AUSTRIAN PATENT OFFICE														

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten internationalen Recherchenbericht angeführten Patentedokumente angegeben. Diese Angaben dienen nur zur Unterrichtung und erfolgen ohne Gewähr.

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The Office is in no way liable for these particulars which are given merely for the purpose of information.

La présente annexe indique les membres de la famille de brevets relatifs aux documents de brevets cités dans le rapport de recherche international visé ci-dessus. Les renseignements fournis sont donnés à titre indicatif et n'engagent pas la responsabilité de l'Office.

Im Recherchenbericht angeführtes Patentedokument Patent document cited in search report Document de brevet cité dans le rapport de recherche	Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
US-A - 3258631		Keine - None - Rien	
US-A - 4839553	13-06-89	Keine - None - Rien	
EP-A1- 371553	06-06-90	DD-A5- 289172 DD-A5- 289850 HU-A0- 896194 HU-A2- 52639 HU-B - 202015 JP-A2- 2257565 US-A - 5017825	18-04-91 08-05-91 28-02-90 28-07-90 28-01-91 18-10-90 21-05-91

BEST AVAILABLE COPY